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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,030	11/26/2003	Kevin John Brown	2775/105	8854

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BROMBERG & SUNSTEIN LLP
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EXAMINER	
WEI, YAN ZHEN	
ART UNIT	**PAPER NUMBER**
3768	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,030	BROWN, KEVIN JOHN	
	Examiner	Art Unit	
	Yan Wei	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract does not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

2. The abstract is objected to because of the following informality:

Grammar errors in statement "There is a **ideally a display** means for showing ....".

Appropriate correction is required.

3. The disclosure is objected to because of the following informality in paragraph 13:

Grammar errors in statement "There is a **ideally a display** means for showing ....".

Appropriate correction is required.

Claim Objections

4. Claim 1 recites the limitation "being controllable" over "the therapeutic source". There is insufficient antecedent basis for "the therapeutic source" in the claim. The examiner interprets it as the therapeutic radiation source used for patient treatment.

5. Claim 1 is objected to because of the improper transitional phrase "further comprising ...". Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-3 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent #6385288 to Kanematsu and further in view of US Patent #6574499 to Dines et al.

Kanematsu discloses a radiotherapy apparatus comprising a therapeutic source, a CT imager, a computing means for providing patient position information to the

controllable therapeutic source (Claims 1-3) via an operator according to the results of image comparisons (Column 6, lines 56-67 and column 7, lines 1-3). Kanematsu further teaches the manual or automatic adjustment of a patient's position based on the comparison between the CT image used for planning a radiotherapy session and the one obtained immediately before the execution of the therapy (Column 6, lines 60-67 and column 7, lines 1-9). Kanematsu does not teach preparing three orthogonal intersecting sectional views from the output of the imager. In the same field of endeavor, Dines et al. teach a mammography apparatus wherein three orthogonal intersecting sectional views of the breast volume image can be produced on a computer display (Column 18, lines 8-30). Dines et al. also teach that this is an effective presentation of the object of interest (Column 18, lines 16-21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Kanematsu's apparatus and employ orthogonal sectional views in order to assist the operator in allowing for a more effective presentation of the area of interest and thereby providing more accurate patient positioning for radiotherapy.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent #6385288 to Kanematsu and US Patent #6574499 to Dines et al. as applied to claim 3 above, and further in view of US Patent #6865253 to Blumhofer et al.

Kanematsu in view of Dines et al. teach all the elements of the current invention except for having intersecting views substantially at the isocentre of the therapeutic source. In the same field of endeavor, Blumhofer et al. teach a method and device for

accurately positioning a patient in radiotherapy with the help of sectional views that are derived isocentrically (Column 2, lines 30-40) from a three-dimensional image capturing the region to be irradiated (Column 5, lined 55-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Kanematsu in view of Dines et al. with the teaching of Blumhofer et al. and employ views including the isocentre in order to effectively monitor the location of the volume to be treated (Column 5, lines 61-66). Further, as the isocentre is the point in space where radiation beams intersect when the Gantry is rotated during beam-on, the target tissue should be always placed at the isocentre in order to minimize the damage to normal tissues.

9. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent #6385288 to Kanematsu and US Patent #6574499 to Dines et al. as applied to claim 1 above, and further in view of Patent Publication US 2004/0120452 A1 of Shapiro et al.

Kanematsu in view of Dines et al. teach all the elements of the current invention except for the details in the approach to obtaining the sectional views with good quality. In the same field of endeavor, Shapiro et al. teach a radiotherapy machine with a method of enhancing data visualization along an arbitrary plane by averaging volume data perpendicular to the plane of view, i.e. plurality of voxels are used (Paragraph 27). The plurality of voxels chosen for the averaging can be disposed linearly along the transverse direction of the plane of interest. Therefore, it would have been obvious to

one of ordinary skill in the art at the time of invention to modify the teachings of Kanematsu in view of Dines et al. with the teaching of Shapiro et al. and derive the pixel values of a 2D image by averaging plurality of voxels, between 5 and 20, which are transverse and orthogonal, or transverse and linear to the plane of interest for the purpose of image enhancement (Paragraph 27).

10. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent #6385288 to Kanematsu and US Patent #6574499 to Dines et al. as applied to claim 1 above, and further in view of US Patent #6865253 to Blumhofer et al.

Kanematsu in view of Dines et al. teach all the elements of the current invention except for the details of image comparison. In the same field of endeavor, Blumhofer et al. disclose, as well known in the art, displaying both real time sectional views and reconstructed x-ray images taken from a previous investigation (Column 1, lines 24-26). Furthermore, by executing controls from an operator via input means, such as keyboard and mouse, the two sets of images are superimposed and can be moved over one another on the display unit (Column 3, lines 32-38). Blumhofer et al. also teach that comparing contours, i.e. outlines of superimposed images is one of means in determining the patient positioning error (Column 11, lines 53-58). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Kanematsu in view of Dines et al. with the teaching of Blumhofer et al. and use the outlines of superimposed sectional views obtained before and during a

treatment as an alternative way to compare images in order to accurately position a patient undergoing radiotherapy.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bailey et al. (US Patent #6914959) teach a combined radiation therapy and imaging system and method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yan Wei whose telephone number is (571) 272-5356. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on (571) 272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

yw

ELENI MANTIS MERCADER
SUPERVISORY PATENT EXAMINER